9. An isolated nucleic acid molecule encoding an ALK-3 polypeptide comprising the amino acid sequence of murine ALK-3 as shown in SEQ ID NO: 14 or the sequence of human ALK-3 as shown in SEQ ID NO: 6.

10. An isolated and purified ALK-3 polypeptide comprising the amino acid sequence of murine ALK-3 as shown in SEQ ID O: 14 or the sequence of human ALK-3 as shown in SEQ ID NO: 6.

11. An isolated nucleic acid molecule encoding an ALK-6 polypeptide comprising the amino acid sequence of murine ALK-6 as shown in SEQ ID NO: 18.

12. An isolated and purified ALK-6 polypeptide comprising the amino acid sequence of murine ALK-6 as shown in SEQ ID NO: 18.

13. A vector comprising the nucleic acid molecule of claim 1.

14. A vector comprising the nucleic acid molecule of claim 3.

15. A vector comprising the nucleic acid molecule of claim 5.

16. A vector comprising the nucleic acid molecule of claim 7.

17. A vector comprising the nucleic acid molecule of claim 9.

18. A vector comprising the nucleic acid molecule of claim 11.

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CLAIMS

1. An isolated nucleic acid molecule encoding an ALK-1 polypeptide comprising the amino acid sequence of murine ALK-1 as shown in SEQ IN NO: 12 or the sequence of human ALK-1 as shown in SEQ ID NO: 2.

2. An isolated ALK-1 polypeptide comprising the amino acid sequence of murine ALK-1 as shown in SEQ ID NO: 12 or the sequence of human ALK-1 as shown in SEQ ID NO: 2.

3. An isolated nucleic acid molecule encoding an ALK-4 polypeptide comprising the amino acid sequence of murine ALK-4 as shown in SEQ ID NO: 16 or the sequence of human ALK-4 as shown in SEQ ID NO: 8.

4. An isolated ALK-4 polypeptide comprising the amino acid sequence of murine ALK-4 as shown in SEQ ID NO: 16 or the sequence of human ALK-4 as shown in SEQ ID NO: 8.

5. An isolated nucleic acid molecule encoding an ALK-5 polypeptide comprising the amino acid sequence of human ALK-5 as shown in SEQ ID NO: 10.

6. An isolated ALK-5 polypeptide comprising the amino acid sequence of human ALK-5 as shown in SEQ ID NO: 10.

7. An isolated nucleic acid molecule encoding an ALK-2 polypeptide comprising the amino acid sequence of human ALK-2 as shown in SEQ ID NO: 4.

8. An isolated ALK-2 polypeptide comprising the amino acid sequence of human ALK-2 as shown in SEQ ID NO: 4.

19. The vector of claim 13, further comprising operation elements to direct expression of the nucleic acid in a suitable host cell.

20. The vector of claim 14, further comprising operation elements to direct expression of the nucleic acid in a suitable host cell.

21. The vector of claim 15, further comprising operation elements to direct expression of the nucleic acid in a suitable host cell.

22. The vector of claim 16, further comprising operation elements to direct expression of the nucleic acid in a suitable host cell.

23. The vector of claim 17, further comprising operation elements to direct expression of the nucleic acid in a suitable host cell.

24. The vector of claim 18, further comprising operation elements to direct expression of the nucleic acid in a suitable host cell.

25. An isolated nucleic acid molecule which hybridizes to the nucleic acid molecule having the nucleotide sequence as set forth in SEQ ID NO: 1 or 11 under stringent conditions, wherein said isolated nucleic acid molecule has a sequence complementary to the nucleotide sequence set forth in SEQ ID NO: 1 or 11.

26. An isolated nucleic acid molecule which hybridizes to the nucleic acid molecule having the nucleotide sequence as set forth in SEQ ID NO: 7 or 15 under stringent conditions, wherein said isolated nucleic acid molecule has a sequence complementary to the nucleotide sequence set forth in SEQ ID NO: 7 or 15.

27. An isolated nucleic acid molecule which hybridizes to the nucleic acid molecule having the nucleotide sequence as set forth in SEQ ID NO: 9 under stringent conditions, wherein said isolated nucleic acid molecule has a sequence complementary to the nucleotide sequence set forth in SEQ ID NO: 9.

28. An isolated nucleic acid molecule which hybridizes to the nucleic acid molecule having the nucleotide sequence as set forth in SEQ ID NO: 3 under stringent conditions, wherein said isolated nucleic acid molecule has a sequence complementary to the nucleotide sequence set forth in SEQ ID NO: 3.

29. An isolated nucleic acid molecule which hybridizes to the nucleic acid molecule having the nucleotide sequence as set forth in SEQ ID NOS: 5 and 13 under stringent conditions, wherein said isolated nucleic acid molecule has a sequence complementary to the nucleotide sequence set forth in SEQ ID NOS: 5 and 13.

30. An isolated nucleic acid molecule which hybridizes to the nucleic acid molecule having the nucleotide sequence as set forth in SEQ ID NO: 17 under stringent conditions, wherein said isolated nucleic acid molecule has a sequence complementary to the nucleotide sequence set forth in SEQ ID NO: 17.

31. A host cell transformed or transfected with the vector of claim 19.

32. A host cell transformed or transfected with the vector of claim 20.

33. A host cell transformed or transfected with the vector of claim 21.

34. A host cell transformed or transfected with the vector of claim 22.

47. The polypeptide according to claim 10, wherein said polypeptide comprises a serine/threonine kinase domain.

48. The polypeptide according to claim 12, wherein said polypeptide comprises a serine/threonine kinase domain.

49. The isolated polypeptide according to claim 2, characterized as:
(i) having a serine/threonine kinase domain,
(ii) activin-binding activity, and
(iii) associates with an activin type II receptor.

50. The isolated polypeptide according to claim 4, characterized as:
(i) having a serine/threonine kinase domain,
(ii) activin-binding activity, and
(iii) associates with an activin type II receptor.

51. The isolated polypeptide according to claim 6, characterized as:
(i) having a serine/threonine kinase domain,
(ii) activin-binding activity, and
(iii) associates with an activin type II receptor.

52. The isolated polypeptide according to claim 8, characterized as:
(i) having a serine/threonine kinase domain,
(ii) activin-binding activity, and
(iii) associates with an activin type II receptor.

35. A host cell transformed or transfected with the vector of claim 23.

36. A host cell transformed or transfected with the vector of claim 24.

37. An isolated antibody which is specific for the polypeptide of claim 2.

38. An isolated antibody which is specific for the polypeptide of claim 4.

39. An isolated antibody which is specific for the polypeptide of claim 6.

40. An isolated antibody which is specific for the polypeptide of claim 8.

41. An isolated antibody which is specific for the polypeptide of claim 10.

42. An isolated antibody which is specific for the polypeptide of claim 12.

43. The polypeptide according to claim 2, wherein said polypeptide comprises a serine/threonine kinase domain.

44. The polypeptide according to claim 4, wherein said polypeptide comprises a serine/threonine kinase domain.

45. The polypeptide according to claim 6, wherein said polypeptide comprises a serine/threonine kinase domain.

46. The polypeptide according to claim 8, wherein said polypeptide comprises a serine/threonine kinase domain.

58. The isolated polypeptide according to claim 8, characterized as:

(i) having a serine/threonine kinase domain,

(ii) having TGF-B binding activity, and

(iii) associating with TGF-II receptor.

59. The isolated polypeptide according to claim 10, characterized as:

(i) having a serine/threonine kinase domain,

(ii) having TGF-B binding activity, and

(iii) associating with TGF-II receptor.

60. The isolated polypeptide according to claim 12, characterized as:

(i) having a serine/threonine kinase domain,

(ii) having TGF-B binding activity, and

(iii) associating with TGF-II receptor.

61. The polypeptide according to claim 2, wherein said polypeptide is an activin receptor.

62. The polypeptide according to claim 4, wherein said polypeptide is an activin receptor.

63. The polypeptide according to claim 6, wherein said polypeptide is an activin receptor.

64. The polypeptide according to claim 8, wherein said polypeptide is an activin receptor.

65. The polypeptide according to claim 10, wherein said polypeptide is an activin receptor.

66. The polypeptide according to claim 12, wherein said polypeptide is an activin receptor.

53. The isolated polypeptide according to claim 10, characterized as:

(i) having a serine/threonine kinase domain,

(ii) activin-binding activity, and

(iii) associates with an activin type II receptor.

54. The isolated polypeptide according to claim 12, characterized as:

(i) having a serine/threonine kinase domain,

(ii) activin-binding activity, and

(iii) associates with an activin type II receptor.

55. The isolated polypeptide according to claim 2, characterized as:

(i) having a serine/threonine kinase domain,

(ii) having TGF-B binding activity, and

(iii) associates with TGF-II receptor.

56. The isolated polypeptide according to claim 4, characterized as:

(i) having a serine/threonine kinase domain,

(ii) having TGF-B binding activity, and

(iii) associates with TGF-II receptor.

57. The isolated polypeptide according to claim 6, characterized as:

(i) having a serine/threonine kinase domain,

(ii) having TGF-B binding activity, and

(iii) associates with TGF-II receptor.

78. An isolated nucleic acid molecule comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NO: 17.

67. The polypeptide according to claim 2, wherein said polypeptide is an TGF-type I receptor.

68. The polypeptide according to claim 4, wherein said polypeptide is an TGF-type I receptor.

69. The polypeptide according to claim 6, wherein said polypeptide is an TGF-type I receptor.

70. The polypeptide according to claim 8, wherein said polypeptide is an TGF-type I receptor.

71. The polypeptide according to claim 10, wherein said polypeptide is an TGF-type I receptor.

72. The polypeptide according to claim 12, wherein said polypeptide is an TGF-type I receptor.

73. An isolated nucleic acid molecule comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NOS: 1 or 11.

74. An isolated nucleic acid molecule comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NO: 3.

75. An isolated nucleic acid molecule comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NOS: 5 and 13.

76. An isolated nucleic acid molecule comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NOS: 7 and 15.

77. An isolated nucleic acid molecule comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NO: 9.